MACC – Monitoring Atmospheric Composition and Climate

- A proposed pilot GMES Atmospheric Service, 2009-2011
- Successor to GEMS FP6 project and ESA-funded GMES Service Element project PROMOTE
- Submitted last week to European Commission in response to a call for proposals for FP7 funding
- Responds also to conclusions of a Workshop on the GMES Atmospheric Service held in December 2006
- May be shaped further following the report of the Implementation Group for the Atmospheric Service

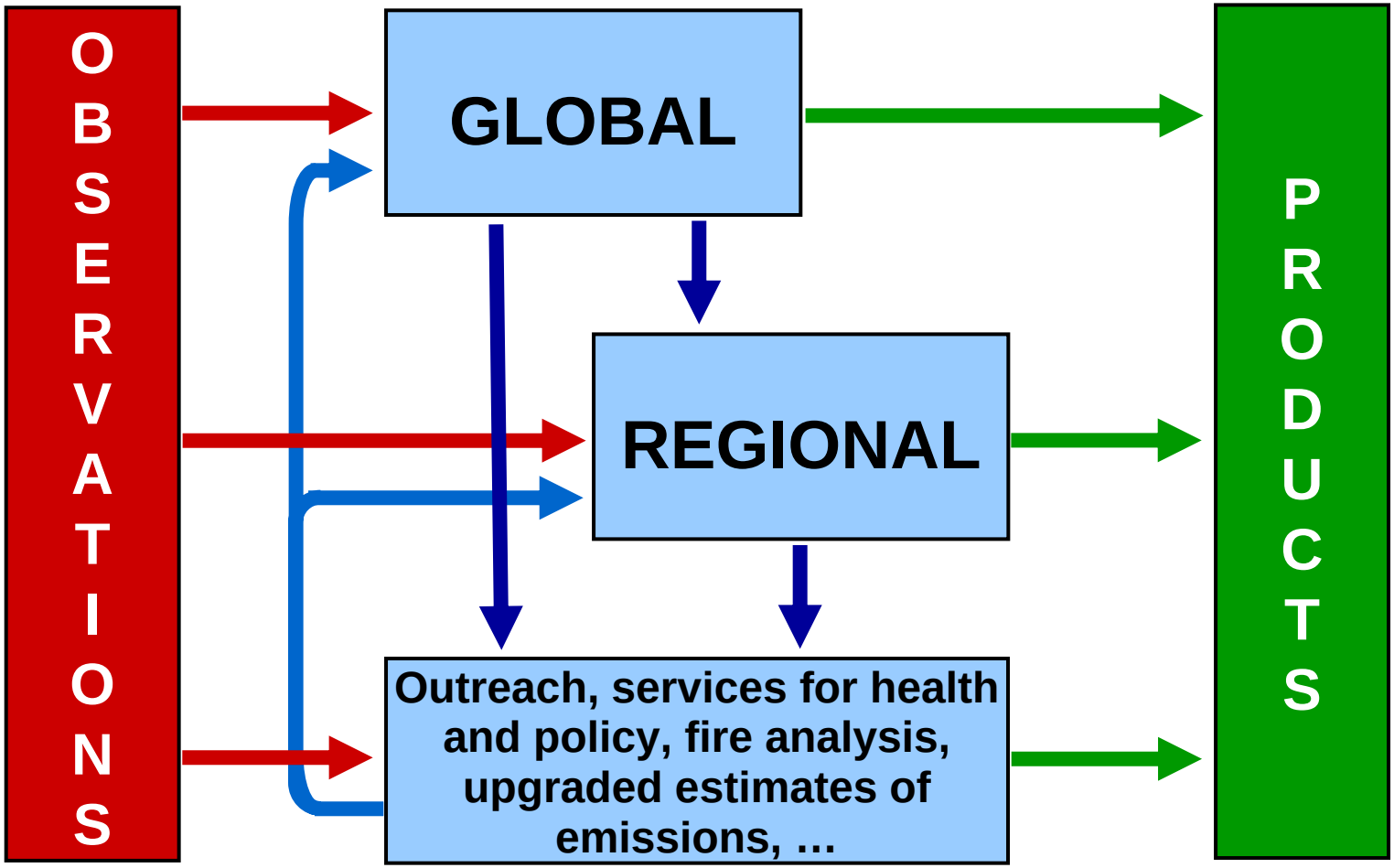
The MACC Partnership

- **The partnership comprises 45 national institutes from 18 European States, plus ECMWF and JRC**
- **Partners include 11 Met Services from Member and Cooperating States of ECMWF**
- **Partners come from 17 Member and Cooperating States**
- **Supporting organizations comprise several other national institutes, EUMETSAT and WMO**
- **ECMWF is project coordinator and leads components on:**
  - global data assimilation, production and services
  - data acquisition

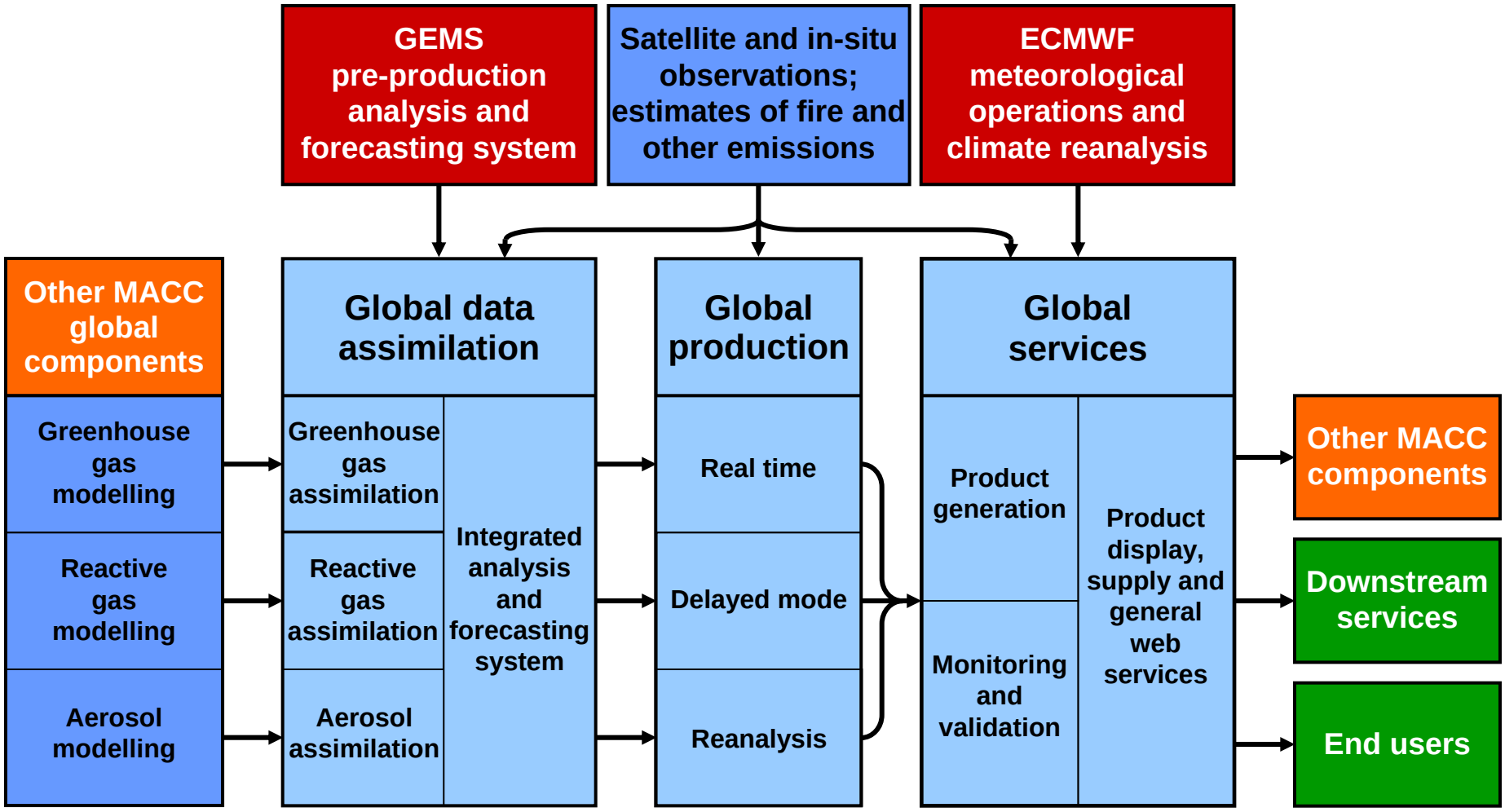
The MACC product set

- Daily global analyses of greenhouse gases, reactive gases and aerosols
- Estimates of global climate forcing, emissions and sinks
- Global forecasts of reactive gases and aerosols
- Regional multi-model forecasts and assessments of air quality
- Specific services for stratospheric ozone, solar and UV radiation, warning of dust-borne meningitis, …
- Estimates of long-range pollutant transport, source attribution, and data in support of international studies

The MACC Project Architecture



The MACC Global Data Assimilation, Production and Service Component



Feedback from MACC to NWP

- **Provision of initial aerosol distributions and aerosol parametrizations for NWP models**
  - for new forecast products
  - for effects on radiation and clouds
  - to be explored by ECMWF and the Met Office in MACC
- **Provision of improved ozone analyses and simplified ozone parametrization scheme**
- **Provision of better trace-gas information for radiative-transfer calculations in assimilation of radiance data**
- **Provision of new diagnostics of NWP model performance**
  - for mass conservation, large-scale transport, convective and turbulent vertical mixing, …

Timescale and budget

- Outcome of assessment of proposal – 4Q 2007
- Report of Implementation Group – 2Q 2008
- Contract negotiation – 3Q 2008
- Project start – 1 January 2009

- ~ 5M € per year for project as a whole
- ~ 30% allocated to ECMWF